

extension offices in the event that any new *V. rotundifolia* colonies are discovered.

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LITERATURE CITED

- Britton, K.O., D. Orr, & J. Sun. 2002. Kudzu. Pp. 325-330 *In* R. Van Driesche, S. Lyon, B. Blossey, M. Hoddle, & R. Reardon (eds.), *Biological Control of Invasive Plants in the Eastern United States*. USDA Forest Service Publication FHTET-2002-04, Bulletin Distribution Center, University of Massachusetts, Amherst, MA.
- Global Invasive Species Data Base (GISDB). *Vitex rotundifolia*. <http://www.issg.org/database/species/ecology.asp?si=1110&fi=1&sts=sss&lang=EN>
- Gresham, C.A., & A. Neal. 2004. An evaluation of the invasive potential of beach vitex (*Vitex rotundifolia*). The Belle W. Baruch Institute of Coastal Ecology and Forest Science, Clemson University, Georgetown, SC. 22 pp.
- Invasive Plant Atlas of the MidSouth. *Vitex rotundifolia* L.f. <http://www.gri.msstate.edu/ipams/Species.php?SName=&CName=Beach+vitex>
- Kim, K.D. 2005. Invasive plants on disturbed Korean sand dunes. *Estuarine, Coastal, and Shelf Science* 62: 353-364.
- Madsen, J.D., C. Abbott, R. Brown, L. Bruce, J. Byrd Jr., E. Dibble, G. Ervin, J. Fowler, V. Maddox, & D. Shaw. 2005. Research to support integrated management systems of aquatic and terrestrial invasive species. Geosystems Research Institute December 2005 Annual Report #5004. Mississippi State University, Mississippi State, MS. 141 pp.
- National Research Council. 2002. *Predicting Invasions of Nonindigenous Plants and Plant Pests*. National Academy Press, Washington, DC. 194 pp.
- Ono, M., T. Yanaka, M. Yamamoto, Y. Ito, & T. Nohara. 2002. New diterpenes and norditerpenes from the fruits of *Vitex rotundifolia*. *Journal of Natural Products* 65: 537-541.
- Sea Grant North Carolina. 2006. Beach vitex: kudzu of the coast? Spring 2006 Coastwatch. National Sea Grant College Program.
- Socha, T., & R. Roecher. 2004. 'Kudzu of the beach' threatens Carolina dunes. *Engineer Update* 28. U.S. Army Corps of Engineers, Washington, DC.
- Swearingen, J., K. Reshetiloff, B. Slattery, & S. Zwicker. 2002. *Plant invaders of mid-Atlantic natural areas*. National Park Service and U.S. Fish and Wildlife Service, Washington, DC. 82 pp.
- ZhiQuan, Z., Z. Yi, C. ShouZhu, & C. YuanSheng. 1996. Study on planting a grass vegetative outer fringe on sandy coast shelter forest in Guangdong Province. *Forest Research* 9: 127-132.
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- PHOTOGRAPHIC DOCUMENTATION OF BLUE-MORPH ROSS'S GOOSE (*CHEN ROSSII*) ON ASSATEAGUE ISLAND, VIRGINIA. – The blue-morph Ross's Goose (*Chen rossii*) is one of the rarer genetically-determined polymorphisms in birds (McLandress & McLandress, 1979; Mundy et al., 2004). Plumage polymorphism in Ross's and Snow Geese is associated with a point substitution in the *melanocortin-1 receptor (MC1R)* gene (Mundy et al., 2004). The origin of the "blue" allele in Ross's Geese is unknown, but it could have been introduced through

hybridization with Snow Geese or it could have originated as a recurrent mutation of the *MC1R* gene. Blue-morph individuals comprise less than 0.01% of the wintering population of Ross's Goose in California (McLandress & McLandress, 1979) and are similarly rare in the Mississippi and Atlantic flyways where wintering populations have increased dramatically during the past two decades (Ryder & Alisauskas, 1995). Records of blue-morph Ross's Geese east of the Mississippi River have been limited to a few anecdotal reports posted by birders and waterfowl hunters on internet websites and a single peer-reviewed sight record from Assateague Island, Virginia (Graves, 2005). A probable blue-morph Ross's Goose \times Snow Goose (*Chen caerulescens*) hybrid was later photographed on Assateague Island (Graves, 2007), but photographic documentation of pure blue-morph Ross's Geese in the Atlantic flyway has yet to be obtained.

On 21 November 2007, I photographed a probable blue-morph Ross's Goose in a flock of 2,000+ Snow Geese near the southern margin of Swan Cove Pond on Assateague Island, Chincoteague National Wildlife Refuge, Accomack County, Virginia (Fig. 1). I watched the diminutive goose from a distance of 50-60 m in good to fading afternoon light (15:50-17:00 EST) as it stood or swam in shallow water among white-morph and a few blue-morph Snow Geese. The following description was made from digital photographs taken with a Canon Powershot A570 camera (7.1 megapixels) through a spotting scope set at 20-30X (Swarovski HD-ATS 65).

The Ross's Goose was significantly smaller than the adjacent Snow Geese and had a proportionally shorter neck and rounder, less angular head (Fig. 1). The plumage color pattern was similar to an adult class-6 blue-morph Snow Goose (Cooke & Cooch, 1968), but the black neck plumage extended anteriorly to the throat and up the back of the neck to the crown above the eyes forming a rounded white face patch. The back and breast were black, becoming charcoal gray on the sides, and pale gray on the lower belly and thighs. Undertail coverts were white. Exposed wing coverts were silvery-gray, the innermost secondaries and tertials were similarly colored but with a blackish stripe along the rachis. The small bill was dark pink, purplish-gray at the base, but lacked a black "grin" stripe typical of Snow Geese or Ross's \times Snow Goose hybrids (McLandress & McLandress, 1979; Graves, 2007). The juncture between the base of the bill and facial feathering was only slightly curved as opposed to strongly arced as in Snow Geese. There was no evidence of ferrous staining on the goose's head.

Discriminating pure Ross's Geese from hybrids may be difficult under typical field conditions. F_1 hybrids



Fig. 1. An adult blue-morph Ross's Goose (*Chen rossii*) photographed on Assateague Island (Chincoteague National Wildlife Refuge), Accomack County, Virginia, on 21 November 2007.

may be identified by their intermediate size and shape and the presence of a thin black grin stripe (Trauger et al., 1971; McLandress & McLandress, 1979; MacInnes et al., 1989). It is not certain whether backcrosses (e.g., Ross's \times F_1 hybrid) can be reliably separated from pure Ross's Geese in the field. In this case, I cautiously classified the blue-morph individual as a pure Ross's Goose because of its (i) small body size, (ii) short neck and rounded head, (iii) small bill with a purplish-gray base, (iv) lack of black grin patch, and (v) rounded white facial patch. The degree of curvature of feathering at the base of the bill is often cited as a character distinguishing Ross's Goose from Snow Goose (Ryder & Alisauskas, 1995). However, there is considerable variation in this character in Ross's Goose. The blue-morph individual on Assateague Island exhibited a slight curve that was well within the range of variation observed in museum specimens ($n = 32$) of presumably pure white-morph Ross's Geese collected in California (pers. obs.; National Museum of Natural History, Smithsonian Institution). The critical field mark appears to be the black grin patch, present in the Snow Goose and Ross's Goose \times Snow Goose hybrids (McLandress & McLandress, 1979) but absent in adult Ross's Goose. However, geese must be observed under ideal conditions in order to distinguish a thin dark grin

patch, present in F₁ and backcross hybrids, from the shadow produced by the tomium of the maxillary ramphotheca in Ross's Goose.

LITERATURE CITED

Cooke, F., & F. G. Cooch. 1968. The genetics of the polymorphism in the goose *Anser caerulescens*. *Evolution* 22: 289-300.

Graves, G.R. 2005. Blue-phase Ross' Geese on Assateague Island, Virginia. *Raven* 74: 68-69.

Graves, G.R. 2007. Ross's × Snow goose hybrids on Assateague Island, Virginia. *Raven* 78: 7-9.

MacInnes, C.D., R.K. Misra, & J.P. Prevett. 1989. Differences in growth parameters of Ross' Geese and Snow Geese: evidence from hybrids. *Canadian Journal of Zoology* 67: 286-290.

McLandress, M.R., & I. McLandress. 1979. Blue-phase Ross' Geese and other blue-phase geese in western North America. *Auk* 96: 544-550.

Mundy, N.I., N.S. Badcock, T. Hart, K. Scribner, K. Janssen, & N.J. Nadeau. 2004. Conserved genetic basis of a quantitative plumage trait involved in mate choice. *Science* 303: 1870-1873.

Ryder, J.P., & R.T. Alisauskas. 1995. Ross' Goose (*Chen rossii*), No. 162. Pp. 1-27 in A. Poole & F. Gill (eds.), *The Birds of North America*. The Academy of Natural Sciences, Philadelphia and The American Ornithologists' Union, Washington, DC.

Trauger, D.L., A. Dzubin, & J.P. Ryder. 1971. White geese intermediate between Ross' Geese and Lesser Snow Geese. *Auk* 88: 856-875.

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TWO AUSTRAL WATER BEETLES NEW TO THE VIRGINIA FAUNA (COLEOPTERA: DYTISCIDAE, HYDROPHILIDAE). – The “Floridian” aspect of the fauna of southeastern Virginia continues to be emphasized by recent discoveries of insects previously known only from more southern distributions. We provide here documentation for two small water beetles which fall into that category, being previously unknown north of North Carolina.

DYTISCIDAE: Hydroporinae: Bidessini
Anodocheilus exiguus (Aubé)

In the faunistic study begun by Michael & Matta (1977), *Anodocheilus* was included in the key to dytiscid genera of eastern United States (and by context, of Virginia). However, this minute species (length 1.4-1.7 mm) remains unrecorded for Virginia, perhaps, in part, because its subfamily (Hydroporinae) was not treated by these authors. Furthermore, Matta (1973, 1979) did not record *A. exiguus* during his surveys of water beetles of the Dismal Swamp (cities of Chesapeake and Suffolk, Virginia, and adjacent North Carolina). It is the lone representative of *Anodocheilus* in North America, documented previously from North Carolina south to Florida and west to Texas (Ciegler, 2003). Ciegler (2003) provided six records for South Carolina, but we have not determined the basis for the earlier citation of North Carolina by Brigham (1982). The NCSU collection has no material from North Carolina nor was it listed for that state by Brimley (1938) or Wray (1967). Ciegler (2003) reported the habitats of this species as ponds and the sandy edges of lakes, streams, and ditches.

We have seen 14 specimens from Virginia: *City of Chesapeake*: without precise location (“Chesapeake, Va.”), 15 June 1972, J. F. Matta (USNM 4). *City of Virginia Beach*: “Site 55, Va. Beach, Va.”, 28 October 1970, Matta (USNM 6); without specification but probably the historic resort area (“Va. Beach, Va.”), 20 November 1970, Matta (USNM 2); same but 11 July 1972, Matta (USNM 1); False Cape State Park, Main Park Road, 1.4 km south of Wash Woods cemetery, 8 September 2006, UV light trap, S. M. Roble (VMNH 1).